Journal of Advanced Research in Dynamical and Control Systems, 2018, vol.10, N2 Special Issue, pages 2230-2235

The dynamics of serial construction of movements in rehabilitative training of young patents who had ischemic stroke

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

© 2018, Institute of Advanced Scientific Research, Inc.. All rights reserved. The article presents the results of the study of the dynamics of serial construction of movements in the rehabilitative training of young patients who had ischemic stroke. The research sample consisted of 34 patients of young age (27-42 years old) who had an ischemic stroke of hemispheric localization for the first time. According to the criteria of localization of the stroke (in the leading or non-leading hemisphere) and the lateralization profile, four research groups were formed. The research methods included a set of functional neuropsychological samples aimed at studying the functions of praxis, as well as hardware methods of diagnosis and rehabilitative learning. As a result of preliminary assessment of the parameters of locomotor and voluntary levels of movement construction in young patients who had ischemic stroke, the disorders of motor skills characterized by specific manifestations depending on the lateralization profile and hemispheric localization of the impact site were revealed. The organization of the contents of rehabilitative training program in young patients who had ischemic stroke was carried out with respect to all specific manifestations of motor functions disorders. The most intensive dynamics in rehabilitative training of young patients who had ischemic stroke was detected in left-handed patients with impact site localization. The minimal effect of rehabilitation of serial organization of movements is noted in right-handed patients of young age who had an ischemic stroke with localization of the impact site in the leading (left) hemisphere. The practical relevance of the empirical results is following: after completing the program of rehabilitation education by young patients who had ischemic stroke, regardless of the hemispheric location of the impact site and the lateralization profile, it was reliably confirmed that serial organization of motor skills, which forms the basis for the formation of self-service skills, was successfully recovered.

Keywords

Ischemic stroke, Patients of young age, Rehabilitation training, Serial organization of motor skills

References

[1] The Demographic Yearbook of Russia. 2017: Stat. coll. – M.: Rosstat, 2017. – 263 p.

[2] Kelly A. Hawkins, Emily J. Fox, Janis J. Daly, Dorian K. Rose, Evangelos A. Christou, Theresa E. McGuirk, Dana M. Otzel, Katie A. Butera, Sudeshna A. Chatterjee, David J. Clark. Prefrontal over-activation during walking in people with mobility deficits: Interpretation and functional implications. Human Movement Science, Volume 59, 2018, Pages 46-55

[3] Over-focused? The relation between patients' inclination for conscious control and single-and dual-task motor performance after stroke Denneman, R.P.M. et al. Gait & Posture, Volume 62, 206-213

[4] Israely S, Leisman G, Machluf CC and Carmeli E (2018) Muscle Synergies Control during Hand-Reaching Tasks in Multiple Directions Post stroke. Front. Comput. Neurosci. 12:10. doi:10.3389/fncom.2018.00010

[5] Wing CHAN, Stephanie Suk AU-YEUNG. Recovery in the Severely Impaired Arm Post-stroke after Mirror Therapy – a Randomized Controlled Study. American Journal of Physical Medicine & Rehabilitation. 2018.

[6] Lee SH, Lee J-Y, Kim M-Y, Jeon Y-J, Kim S, Shin J-H, Virtual reality rehabilitation with functional electrical stimulation improves upper extremity function in patients with chronic stroke: a pilot randomized controlled study, Archives of physical medicine and rehabilitation (2018)

[7] Grzegorz Przysada, MD; Justyna Leszczak, MSc. Selected Factors Against Functional Performance in Patients in the Early Period After Stroke. Topics in Geriatric Rehabilitation. Volume 33, Number 4, 2018, p. 238 – 243

[8] Luria A.R. The Higher Cortical Functions in Man..-St. Petersburg: Petersburg, 2008.-624 p.

[9] Nikishina V.B., Petrash E.A., Zapesotskaya I.V. Perception of emotions in patients with ischemic stroke / / Korsakov Journal of Neurology and Psychiatry.-2015.-Vol. 115.-№ 10-1.-p. 4-9

[10] Nikishina V.B., Petrash E.A. Reciprocal organization of constructive activity in patients with ischemic stroke / / Korsakov Journal of Neurology and Psychiatry.-2017.-Vol. 117.-№. 3-2.-p. 79-89.

[11] Functional biocontrol with "Reakor" biological feedback. Software and methodological support. User guide. Methodical instructions.-Taganrog: NPKF "Medicom MTD", 2013.-176 p.

[12] Vasserman L.I., Dorofeeva S.A., Meerson Y.A. Methods of neuropsychological diagnosis.-St. Petersburg: Stroilespet, 1997.-360 p.

[13] Certificate 2017619968 of Russian Federation. Certificate of state registration of the computer program. "Visual Medicine" cognitive training program / V.B. Nikishina, E.I. Nikishina, I.I. Nikishin; the applicant and the copyright holder is Vizmi ltd. (RU). – applic. 18.07.17; publ. 12.09.17, Register of Computer Programs.-1 p.